

Claims

1. An aqueous substrate coating or imbibing solution for treating a substrate prior to printing, and for enhancing image visualization and retention of ink jet inks and comprising N-methylmorpholine-N-oxide.  
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2. An aqueous coating formulation containing solids, for enhancing image visualization and retention of ink-jet inks, comprising:
  - a) N-methylmorpholine-N-oxide
  - 10 b) a cationic polymer or copolymer,
  - c) and a fabric softener.
3. The aqueous coating of claim 2 further containing urea.  
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4. The aqueous coating of claim 2 wherein said coating includes between about 0.05-10 percent total solids of N-methylmorpholine-N-oxide.  
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5. The aqueous coating of claim 4 wherein said coating includes between about 2 and 5 percent total solids N-methylmorpholine-N-oxide.  
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6. The aqueous coating of claim 2 wherein said coating includes between about 25-75 percent total solids cationic polymers or copolymers.  
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7. The aqueous coating of claim 6 wherein said coating includes between about 25 and 40 percent total solids cationic polymers or copolymers.  
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8. The aqueous coating of claim 2 wherein said coating includes between about 5 and 20 percent total solids fabric softeners.
9. The aqueous coating of claim 8 wherein said coating includes between about 10 and 20 percent total solids fabric softeners.
10. The aqueous coating of claim 2 further including a latex polymer.
11. The aqueous coating of claim 10 wherein said latex polymer is present in an amount of between about 0-50 percent total solids.

12. The aqueous coating of claim 2 wherein said total solids are present in an amount between about 10-50 percent.
- 5        13. The aqueous coating formulation of claim 2 further including urea.
14. The aqueous coating formulation of claim 13 wherein said urea is present in an amount of between about 0.05 and 7 percent total solids.
- 10      15. The aqueous coating formulation of claim 14 wherein said urea is present in an amount of between about 2 and 5 percent total solids.
16. The aqueous coating formulation of claim 2 further including a sequestering agent.
- 15      17. An aqueous coating formulation containing solids, for enhancing image visualization and retention of reactive dye-based inks, comprising:
  - a) N-methylmorpholine-N-oxide
  - b) a cationic polymer or copolymer,
  - c) a fabric softener,
  - d) urea, and
  - e) a component selected from sodium bicarbonate, sodium carbonate or combinations thereof.
- 20      18. The aqueous coating formulation of claim 17 wherein either the sodium bicarbonate, sodium carbonate, or combination thereof is present in an amount of between about 1-10 percent of the total solids.
- 25      19. An aqueous coating formulation containing solids, for enhancing image visualization and retention of reactive dye-based inks, comprising:
  - a) N-methylmorpholine-N-oxide
  - b) a cationic polymer or copolymer,
  - c) a fabric softener,
  - d) urea, and
  - e) ammonium salts of multifunctional weak acids.
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20. The aqueous coating formulation of claim 19 wherein said ammonium salts are selected from the group consisting of ammonium oxalate, ammonium tartrate and ammonium sulfate.
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21. The aqueous coating formulation of claim 20 wherein said ammonium salts are present in an amount of between about 0.1 and 5.0 percent total solids.
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22. A method of treating a substrate so as to improve the adhesion, colorfastness and washfastness of an acid dye-based ink jet ink printed onto the substrate, and which substrate may be exposed to a post-treatment step following printing, including the steps of:
  - a) providing a substrate, and
  - b) pretreating the substrate with an aqueous coating formulation comprising N-methylmorpholine-N-oxide, a cationic polymer or copolymer, a fabric softener, urea, and an ammonium salt of multifunctional weak acids.
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23. A method of producing a printed substrate so as to improve the adhesion, colorfastness and washfastness of an acid dye-based ink jet ink printed onto the substrate, including the steps of:
  - a) providing a substrate,
  - b) treating the substrate with an aqueous coating formulation comprising NMNO, a cationic polymer or copolymer, a fabric softener, urea, and either ammonium sulfate, oxalate or tartrate,
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  - c) drying the substrate,
  - d) printing on the substrate with an acid dye-based ink, and
  - e) optionally post-treating the printed substrate.
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24. A method of treating a substrate so as to improve the adhesion, colorfastness and washfastness of a reactive dye-based ink jet ink printed onto the substrate, and which substrate may be exposed to a post-treatment step following printing, which method includes the steps of:
  - a) providing a substrate, and
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- b) pretreating the substrate with an aqueous coating formulation comprising NMMO, a cationic polymer or copolymer, a fabric softener, urea, and either sodium bicarbonate, sodium carbonate or combination thereof.
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- a) providing a substrate,
  - b) pretreating the substrate with an aqueous coating formulation comprising NMMO, a cationic polymer or copolymer, a fabric softener, urea, either sodium bicarbonate, sodium carbonate or combination,
  - c) drying the substrate,
  - d) printing on the substrate with a reactive dye-based ink, and
  - e) optionally post-treating the printed substrate.

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